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THE REPORT OF THE I.C.V.D., UNITED PROVINCES.

The annual report of the Civil Veterinary Department of the United Provinces has just been published, and is highly satisfactory. In no part of India does the C.V.D. appear to be making better headway than in the United Provinces.

Under the same guidance as last year, viz., that of Mr. E. W. Oliver, M.R.C.V.S., as Superintendent, with Mr. C. W. Wilson, M.R.C.V.S., as second Superintendent, the activities of the Department have steadily expanded throughout the year. Much further progress has been made in gaining native confidence, with the result that outbreaks of disease are now far more frequently reported than formerly, and the old prejudice against inoculation methods is evidently beginning to disappear. Thanks to inoculation, rinderpest is abating; and the abatement was most marked towards the end of the year under report. Other diseases of course exist in plenty, and good work has been done with all, while fresh legislation has strengthened the Department's hands with regard to some.

The local hospitals and dispensaries continue to increase, both in their number and the attendances they attract. Breeding operations are extending—especially horse breeding—while the newly-created bull farm is now in working order with hopeful prospects. In fact, the only unsatisfactory feature in the report is its evidence of the old-standing difficulty of the C.V.D.—the paucity of funds and men.

The Department is still grievously undermanned, and the need for provision for the training of Deputy Superintendents is becoming more and more urgent. Nothing has yet been actually done to meet it; but communications upon the subject are passing between the Director of Land Records and Agriculture (who fully recognises the need) and the Secretary to Government. This we gather from two letters between these officials which are printed with the Report, as was the case last year. Last year, we noted with pleasure that both these letters—which might have been limited to formal submission and acknowledgement respectively of the Report—fully recognised the merit of the C.V.D.'s work. This year we see that both again do so with equal emphasis. Evidently the value of the C.V.D. is becoming impressed upon the authorities, and it should not be long, therefore, before further facilities for extending its work are accorded. In the meantime, Messrs. Oliver and Wilson have good reason for pride in their record as it stands, and may confidently await the time when they will be reinforced by a body of adequately trained Deputy Superintendents.

FATAL TETANUS BROUGHT ABOUT BY HYPODERMIC INJECTIONS OF QUININE IN THE HORSE.

By T. LISHMAN, Lieut. A.V.C., Campbellpore, India.

"The case was one of acute biliary fever, evening temperature for the first week or so reaching 106° F. on four occasions.

Three subcutaneous injections of quinine bihydrochloride were given on alternate days—dose ʒii. Each seat of inoculation on the following day showed a painful diffuse swelling about 9 inches in diameter (roughly).

Two or three days after inoculation, the swelling had a firm indurated periphery, and a fluctuating centre. On lancing the centre, an ounce or two of clear fluid was evacuated, leaving a cavlty, the walls of which were formed by the indurated swelling.

During the ensuing days, a certain amount of sloughing took place in the subcutaneous tissue round the cavity, and tetanus (so severe as to necessitate the animal's destruction) set in about ten days after the first injection.

Section of these swellings showed an area of subcutaneous necrosis extending for fully an inch round the cavities.

It may be mentioned that most particular care was taken with regard to asepsis, and the quinine was dissolved in boiling distilled water which was allowed to cool slowly."

The writer is indebted to Capt. W. J. Dale, A.V.C., Rawal Pindi, for the above description of a case treated by him a few weeks ago. At first sight nothing very remarkable is indicated by the case, and one is apt to dismiss it by saying that no doubt, in spite of all precautions, some tetanus organisms were injected with the solution, that the syringe or needle was dirty, that the skin was imperfectly sterilised, that the wound caused by the insertion of the needle was subsequently improperly protected, or that it was what is called a case of idiopathic tetanus; and its occurrence following the quinine injections was a mere coincidence.

That there must be other ways by which the animal could have been infected is. however, beyond dispute when one is assured that the precautions taken were so complete that the above mentioned channels of infection can at once be excluded.

Quinine, as is well known, when given in large doses produces the unpleasant and dangerous condition known as cinchonism, and it was to obviate this, get a more rapid action action of the drug, and at the same time prevent gastric derangement, that

hypodermic and intramuscular injections were brought into use in human practice. This method of treating malaria in man rapidly took on, and gained popularity, until it was discovered that every now and then fatal attacks of tetanus followed the treatment. In fact medical men became so alarmed that in a short time the treatment almost ceased to be continued.

The channel of infection was so obscure that a full investigation was made by Lieut.-Col. Sir D. Semple, R.A.M.C., and the following remarks are made after a perusal of his reports.

Anything which lowers vitality, such as extremes of temperature and fatigue, may be looked on as predisposing agents to tetanus. Quinine when injected into the body would also be a predisposing agent:—

(1) By paralysing phagocytes.

(2) By causing an area of necrosis at the seat of injection that would be a suitable medium for the anærobic tetanus spores to grow in.

Tetanus does not always result when tetanus germs are introduced into the body.

"Washed spores" is the term by which is known the pure spores of tetanus which have had every trace of their toxin removed by filtering and washing several times in sterile normal saline solution, and it has long been known that when these are injected into an animal they fail to produce teranus because they are either ingested by phagoeytes, or are surrounded by the tissues of the part, where they may remain for years until they find suitable conditions to grow into bacilli and produce the disease by manufacturing their toxins.

If, however, these harmless "washed spores"-are accompanied into the body by anything that will cause injury to, and destruction of the tissues, and tend to prevent phagocytosis, such as earth, sand, quinine, tetanus toxin, or other bacteria, then tetanus is the result.

In short, the introduction of pure "washed spores" produces a positive chemiotaxis, and the introduction of these spores sogether with sand, quinine, etc., produces a negative chemiotaxis.

Regarding the fate of the "washed spores" that are injected into the animal body, without producing tetanus, Col. Semple asks the following questions at the commencement of his experiments;—

"Now the question arises. when tetanus spores are injected hypodermically, are they in all cases picked up and destroyed by the phagocytes, or are some of them stowed away locally, to remain dormant until some irritant or some other depressing influence produces favourable conditions for their liberation and growth into toxin producing baciili?

"Would a similar locking up of tetanus spores take place when wounds or abrasions are infected with spore-containing material."

After referring to Vaillard and Vincent (*Annales de l'Institut Pasteur*, Jan. 25, 1891) having proved that pure "washed spores" absolutely free from all tissue-destroying agents, when injected into the tissues are attacked and ingested by the phagocytes, the investigator states:—

"It may happen even with active phagocytes that some of the spores escape destruction, and become stowed away locally to grow and produce infection at some future time when conditions become favourable. It may also happen that some of the phagocytes require a considerable time to kill off and digest the toughest of the spores, and that phagocytes in this condition on re-entering the circulation may get stranded or lodged in a suitable site where the spores can grow and give rise to tetanus. The subcutaneous or intramuscular injection of quinine would produce such foci provided spore-laden phagocytes become lodged there."

To prove this assumption, and also to be able to answer the foregoing questions, there were carried out 19 series of the most interesting experiments, the details of which I regret would be much too lengthy to recount in this short communication.

The 1st, 2nd, 3rd, 4th, and 5th series go to prove that quinine injected one day before, the same day, or one day after "washed spores" are injected, produces conditions favourable for infection, and in addition prove that infection is more rapid where the quinine is injected before the spores.

The 6th series go to show that cold will bring about fatal tetanus in animals injected with "washed spores" and that quinine injected in addition renders the animal still more susceptible.

The following important sentence occurs at the end of the description of this series:—"One would infer from these experiments that it is possible for a latent infection to be stirred into activity by cold or other depressing influences."

The 7th series went wrong owing to the accidental contamination of the culture from which the "washed spores" were obtained.

The 8th series showed that when a culture of tetanus germs (not "washed spores") is inoculated into one part of the body, and quinine injected into another, after death the organism can be recovered from the site of the quinine injection, although it is not to be discovered in any other part of the body excepting at the point where the disease was inoculated. This certainly looks like proof of a spore having been conveyed by a phagocyte to the part that had been suitably prepared for its reception by the hypodermic injection of quinine.

The 9th series gave additional proof that the bacillus of tetanus cannot be recovered from any other part of the body when quinine and "washed spores" have been injected, excepting at the two points mentioned in series No. 8.

The 10th series proved that morphia and normal saline solution when injected do not produce conditions suitable for the growth of the tetanus bacillus.

The 11th series proved that when "washed spores" are injected with quinine tetanus is the result, but when injected with morphia the disease is not produced.

The 12th series were the same as the foregoing, only monkeys were used instead of guinea-pigs, and the same conclusions arrived at.

The 13th series proved that six months after "washed spores" had been injected into a guinea-pig, without causing tetanus, they could be recovered from the site of introduction, cultivated under anærobic conditions, and used to produce fatal tetanus in other animals.

The 14th series proved that the tetanus organism could not be discovered in the blood of animals dead of acute tetanus.

The 15th series showed that out of an examination of human fæces from ten healthy individuals in four cases tetanus bacilli were isolated. This series is concluded with the following interesting passage:—"Granted that it is possible for tetanus spores to enter the circulation from the intestinal tract where the mucous membrane is injured, ulcerated, or in any way damaged to such an extent as to be incapable of keeping back infection, what is to prevent such spores getting stranded in an injury somewhere else in the body where there is dead anærobic tissue? The hypodermic or intramuscular injection of quinine would prepare a suitable focus in a case of this kind, and so would injuries of various sorts which are constantly occurring. It seems to me that this is a reasonable possibility of infection in cases of so-called idiopathic tetanus, and in many other injuries, including quinine injections, but to say more on the subject at present would savour of conclusions arrived at in the absence of proof."

The 16th series consisted of four healthy guinea-pigs being injected on the front of the chest with three-quarters of a grain of quinine, which was repeated two days later. Two days after the second injection they were killed, and anærobic culture made from the sites of the quinine injections, when a pure growth of tetanus bacilli was isolated from one of the animals. Is this explained by the remarks on the 15th series?

The 17th series was the same as No. 16, but no bacilli were recovered. The result here goes to show the correctness of the opinion formed of the 8th series, because here no spores were injected.

The 18th series showed that 10% of guinea-pigs harbour tetanus spores in their intestinal tracts, but that all are not virulent.

The 19th series showed anti-tetanic serum to be a reliable protective against tetanus, even though quinine be injected.

Colonel Semple concludes this most interesting piece of research by advising medical men "to give a dose of anti-tetanic serum immediately before or immediately after giving quinine hypodermically."

Seeing that the horse is the animal in the world most subject to tetanus, the above abridged account of Col. Semple's most valuable work must be of more than passing interest to veterinary surgeons, who will no doubt await, with special attention, corroboration from the laboratory workers.

It has for many years been known that the tetanus organism is a frequent inhabitant of the intestine of all herbivora, but the statement that live tetanus organisms can either be imprisoned in the tissues, or conveyed about the body in phagocytes will come as a surprise to most people.

Judging from the results of the experiments, one is led to believe that an injection of quinine exercises a sort of magnetic attraction on tetanus spores that are either in the animal's body, or living in its intestines, drawing them up to the site of injection, which, owing to injury done to the tissues by the quinine, has become an ideal anærobic culture medium where they can grow into toxin-producing bacilli and thus cause the death of the animal.

If corroboration is forthcoming, then knowledge of the disease will be greatly increased, and one will have no difficulty in understanding such cases of tetanus as that described by Captain Dale, and one will also be able to understand how cases can arise from a bruise without a sign of the skin having been broken.

Note.—If any of your readers wish to read the full account of these experiments they can be obtained from Messrs. W. Thacker and Co., 2, Creed Lane, London, E.C., or Mr. E. A. Arnold, 41 and 43, Maddox Street, Bond Street, W., in the form of a pamphlet costing about 1/- "The Relation of Tetanus to the Hypodermic or Intramuscular Injection of Quinine," by Lieut.-Col. Sir D. Semple, R.A.M.C., Kasauli, India. In India the pamphlet can be obtained from Messrs. Thacker, Spink, and Co., Calcutta.—T.L.

ABSTRACTS FROM FOREIGN JOURNALS.

Multiple Hæmorrhages in the Muscles of the Pig.

Multiple hæmorrhages are distinguished according to their origin, which may, on the one hand, be toxic and infectious, and on the other hand, may be merely traumatic. In the first of these cases the hæmorrhages only form one of the manifestations of the infectious or toxic process; others, and especially degenerative lesions of the parenchymatous organs, are also observed. In cases of this nature, muscular hæmorrhages are observed coincidently with petechiæ upon the serous and mucous membrances and even in the substance of certain organs. All these cases are excluded from an article published by Berger (*Tydschrift voor Veeartsenijkunde*), who confines himself solely to the hæmorrhages which are seen in the muscles of pigs of which the other organs are healthy.

Ostertag, in 1890, described three cases of muscular hæmorrhages in pigs which had been slaughtered with the mallet and bled after the ordinary method. The extravasations were observed especially in the diaphragm and in the abdominal and lumbar muscles. Ostertag invariably found ruptures of the muscular fibres here, while elsewhere he found fibres containing fatty granules. He attributed the hæmorrhages to the rupture of the fibres, and thought that the cause might be found in the manner of life of the pigs. From their youth the pigs had led a very inactive life, and Ostertag's view was that the muscular fibres having become enfeebled in consequence of this, the unaccustomed movements of the pigs at the moment of slaughter and during transport may have resulted in their rupture.

This view was supported by Ostertag's further statement that these hæmorrhages are seldom seen in breeding sows and boars, which live a much more active life.

Schneider, however, has systematically examined 2,000 pigs and has found the hæmorrhages in 25·7 per cent. of them. He also asserts that these accidents are found not only in fat pigs, but also in lean ones.

Berger's own observations upon the subject have been careful and extensive. He has observed that these hæmorrhages are situated especially in the muscles which have already been mentioned, and that they have a length of from a few millimetres to two centimetres (two centimetres=about 4-5th inch) and a width of two millimetres (approximately 1-12th inch). Sometimes they are found in such abundance that the muscle has a blackish blue tint. When the affected parts are incised, a dark red liquid escapes.

Berger's observations led him to the conclusion that the condition depended upon other etiological factors than those stated by Ostertag, and this idea was soon confirmed. Berger has supervised two establishments for the slaughtering of pigs for exportation, in which the methods of slaughter employed were not the same. The methods of these establishments, and the history of each as regards the occurrence of hæmorrhages, are as follows.

In abattoir A, previous to May 1st, 1909, the pigs were slaughtered with the mallet, in batches of twenty at a time. Each pig received a blow with the mallet, but it was not till the whole twenty had been thus stunned that bleeding was practised. Moreover, the animals were not bled in accordance with the order in which they were stunned. While this method was followed the hæmorrhages under consideration were very abundant at this abattoir, two per cent. of the pigs showing them.

In abattoir B. the pigs for a long time had been killed by the American method, viz., the animal being suspended in the air by the hind limbs, and bled immediately without stunning, with the head hanging downwards. In about 140,000 pigs killed in this fashion, Berger never observed the hæmorrhages. Previous stunning was then introduced into this abattoir, and from the day of its introduction the hæmorrhages commenced to appear.

The author thinks, therefore, that the hæmorrhages may be attributed to the stunning. He has attempted to find out whether the exact method of stunning adopted exercises any influence, and he has been informed that the hæmorrhages have not been observed in abattoirs where special apparatus (the bullet, percussion, etc.) are employed. In Germany, where pigs are generally stunned by a blow from the mallet, hæmorrhages are encountered in 25% of those killed.

In abattoirs it often happens that, no order being followed, the first pigs to be stunned in a batch are the last to be bled. In abattoir A., therefore, it was arranged that no more than six pigs should be stunned at a time before bleeding, and, when this was done, it was quickly found that muscular hæmorrhages diminished.

Berger then directed that the pigs should be bled immediately after stunning; and, while previous to this he had found hæmorrhages in 2% of the animals killed, he has since, up to the present time, inspected 5,000 pigs without finding one case. Ruptures of the muscular fibres, however, are still observed, but as the pigs are bled immediately, the blood has little time to become extravasated into these ruptures.

It is evident, nevertheless, that hæmorrhages may be produced a certain time before slaughter by the different traumatisms to which the pigs may be exposed.—*Annales de Méd Vét.*

Trichosoma Plica in the Bladder of a Dog

Emil Balla, of Budapest, records (*Allatorvosi Lapok*) two instances of this apparently rare occurrence, *Trichosoma plica* occurs in the bladder of the fox and wolf, but has only very rarely been found in the dog (Bellingham, Neumann, von Rätz). Balla's two cases were in a hunting dog and a St. Bernard. The urine of both these dogs contained the lemon-shaped ova of this worm, which coloured yellow, probably by the urinary pigments. In both cases symptoms of cystitis could be observed.

One of these dogs died of septicæmia; but only ova, and no fully developed worms, were found in the bladder post-mortem. Probably the worms had become detached from the vesical mucous membrane after death, and had escaped at the moment the bladder was opened. The other dog was really under treatment for a skin disease; when the skin disease was cured, the animal received 1 gramme of urotropin daily for ten days, but the ova of the trichosomes did not disappear from the urine. In both cases the parasites only caused slight catarrh of the bladder.—(*Berliner Tier. Woch.*)

[It is worthy of note that Bellingham, one of the few men who have found this parasite in the canine bladder, found it in Ireland,—Trans.]

Diphtheria in Sucking Pigs.

Wysmann describes (*Schweizer Archiv*) an infectious disease of sucking pigs which has prevailed for some decades in his district, where it is known and feared by pig breeders. One of the popular names for the affection is "thick neck." The most prominent symptoms are difficulty of breathing, hoarseness of voice, snuffling inspiration, seromucous or frothy nasal discharge, swelling and sensitiveness to pressure of the parotid region, anxious expression, and finally ulceration of the gums and tongue.

Post-mortem, inflammation of the larynx and the nasal passages is found: and Guillebeau, microscopically examining the deposits appertaining to these regions, found numerous thin bacilli, in part Gram-positive and in part Gram-negative, which he regards as diphtheria bacilli. Other bacteria are also present in small numbers.

Wyssmann regards the nature of the disease as doubtful, holding that two opinions of it are admissible. It may, he thinks, be a special form of swine fever, in which the diphtheria bacilli only play the part of a secondary infection, while the primary cause of the disease is the virus of swine fever. On the other hand, of course, it may be an independent diphtheria, such as has already been repeatedly found in older pigs.—*Berl. Tier. Woch.*

W. R. C.

THE DETECTION OF TUBERCLE BACILLI IN SPUTUM.—By F. W. EURICH, M.D., Bradford.

The method of examining sputum for tubercle bacilli which is still in general use is that of preparing the films direct from the sputum by picking out of it the likely flocculi and spreading them out on a cover glass or slide.

This method has never been considered satisfactory. Many processes have therefore been tried whereby the search for the bacilli may be made easier and more sure, but none have found general favour.

A great improvement was effected by Uhlenhuth's method, which consists in making the sputum homogenous by the addition of "Antiformin," and in examining the sediment that forms on standing, or after use of the centrifuge.

Its drawbacks are that a centrifuge of high velocity is required, and that the sediment has to be specially fixed on the slide.

The necessity for such a centrifuge alone makes the original method impracticable for most practitioners. Both difficulties are overcome by an ingenious modification published by Koslow in June of last year.

As this improved method seems to be very little known, and as my results with it have fully borne out the advantages claimed for it, I make no excuse for trying to draw to it the attention of those who take an interest in sputum examination.

I have applied it now in several hundred cases, and can confidently recommend it as a great improvement upon all devices. The method is briefly thus: A quantity of the sputum is shaken up with "Antiformin" in a glass stoppered vessel, such as a measure cylinder (Antiformin=15 per cent. Liq. Sod. Hydrat.+Liq. Sod. Chlorinat. *aa*.) the proportion of "Antiformin" depending upon the consistence of the sputum; if the latter is very viscid or dense an equal proportion may be required; if thin, then half the amount may suffice. The mixture is occasionally shaken during five minutes, it is then diluted with a volume of distilled water approximately ten times as great as that of the "Antiformin" used, and again shaken for a few minutes. Finally there is added a mixture of equal parts of ether (methylated ether will do) and acetone equal in volume to that of the water. It is shaken once more for a few seconds, and the whole allowed to stand. In a few minutes the contents of the bottle will be found to separate into three layers. The middle layer, appearing as a more or less dense white ring, will contain nearly all the tubercle bacilli that may be present in the sputum and can be drawn off with ease by means of a pipette fitted with a teat. The density of this middle layer can be increased after it has been pipetted off, if desired with the help of a centrifuge (an ordinary hand centrifuge will answer the purpose) but it is not necessary. A film is made, dried, and fixed in the usual way by passing it through a flame.

Before staining the film I immerse it for a few seconds in 5 per cent. alkali and wash to remove the acid. If the examiner is interrupted or otherwise pressed for time the whole mixture may be allowed to stand till the next day, or even longer, the acid-fast property of the bacilli is not affected by the delay. The sputum-antiformine mixture should be diluted with distilled, not with tap water, as the latter may contain acid-fast bacilli. The advantages of the method are—

1. Its cleanliness.
2. A special armamentarium is not required.
3. The search for tubercle bacilli is more thorough and sure.

A drawback might be found in the slight additional cost incurred by the use of ether and acetone, but the greater accuracy of the results—more than 15 per cent. of otherwise negative tests proving positive by this method—is surely adequate compensation.—*B.M.J.*

MR. BRITTLEBANK'S REPORT TO THE MEDICAL OFFICER OF HEALTH, MANCHESTER, 1910. (ABSTRACT.)

I beg to submit my report on the work done during the year. In carrying out the duties for which I was appointed—(1) The Inspection of the Manchester Cowsheds and Dairies as to their compliance with Manchester Regulations made under the Dairies, Cowsheds, and Milkshops Order; (2) to act as Veterinary Inspector in the working of the Milk Clauses contained in the Manchester General Powers Act, 1899.

Manchester Cowsheds.—These number 233 on 119 farmsteads, and have a housing capacity of about 2,000 cows. This number, however, as stated previously, is very variable, and is considerably affected at various times of the year by many factors such as the price of country milk, price of cattle, the effect of these causes being more evident in the case of the men in a small way of business.

Two farms have been closed during the year, and as both of them were premises so situated as to be in the midst of dwelling houses, the end of cowkeeping in such surroundings is a matter for congratulation.

In the course of the regular inspection of the city farms, 398 visits have been paid and 691 inspections of cowsheds carried out.

Nothing of any special interest has arisen during the year. The start of reasonable cleanliness has been fairly well maintained, but the irritating lapses evident in every year have still been a feature, necessitating repeated fault-finding and spurring on to do better.

Manchester Cows.—The total number of inspections made of the City cows during the year was 7,361. The number of cows housed within the City boundaries is something short of 2,000. The exact figure at the last enumeration was 1,979. The full accommodation is never utilised.

The quality of the cows kept in the City has been difficult to maintain. For some time past the price of cows has been abnormally high, and the result of this has been to tempt many to purchase cows which are not of the high quality which we require in the City, thus leading to much annoyance on the part of the cowkeepers when found fault with, as they often have been. I do not suggest for a minute that the cowkeepers of the City have purchased diseased cows. This, I know, they avoid as far as possible; but there is a class of aged cows of which there are always plenty on the market which are comparatively cheap, and which at one time were regarded as the proper class to keep in City dairies. The same impression still remains in many places. It is, for instance, common to hear in many out-lying districts certain animals referred to as suitable for town

cows. Many causes have contributed to raise the price of cows, and it would not help to attempt a discussion of these causes, but for the sake of the dairy farmer it is more satisfactory when the supply and demand are more nearly equalised, and appearances tend at present to show that the trade is returning to its more normal level.

One cow suffering from tuberculosis of the udder was found in one of the City cowsheds, and was slaughtered, the carcase being condemned. Nine other cows were removed by my orders, and seven of these were also slaughtered for me to see, and in only one case was the carcase fit for food.

The Manchester Milk Clauses.—No changes have been made in the methods of working the Milk Clauses of the Manchester General Powers Act, 1899.

Samples of milk are obtained at the Manchester and other railway stations, or elsewhere within the City, by the Food and Drugs Inspectors. These are submitted to Prof. Delépine for bacteriological examination. All samples reported by him as having been found to cause tuberculosis are followed to their source at the farm by the Medical Officer of Health (or his representative) and the veterinary surgeon.

The veterinary surgeon examines all the cows on the farm, and takes separate samples from the cows having diseased or suspicious udders. All samples are taken in sterilised bottles supplied by Prof. Delépine, and every care is exercised to exclude accidental infections. These special samples are in their turn submitted to Professor Delépine for bacteriological examination, and in this way the fact of a cow having tuberculosis of the udder is definitely ascertained. Samples from cows found by clinical examination to have diseased or suspicious udders are treated in the same way.

Extensive use is made of control samples to ensure that the inspection and examination have been satisfactorily concluded, and that all active sources of infection have been removed.

Tuberculous Milk.—During the year, 519 samples of milk have been collected by the Food and Drugs Inspectors in connection with tuberculosis. Of this number, 513 were taken at the railway stations, and the remainder from carts coming in by road. The number of farmers represented in this total is 468.

Of these 468 farmers, 274 reside in Cheshire, and 17 of them (6·20 per cent.) sent tuberculous milk ; 115 live in Derbyshire, and 10 of them (8·69 per cent.) sent tuberculous milk ; 54 live in Staffordshire, and 3 of them (5·55 per cent.) sent tuberculous milk ; 14 live in Lancashire, and none sent tuberculous milk ; 4 live in Shropshire, and none sent tuberculous milk ; in addition, 6 live in Yorkshire and 1 in Leicestershire, and from neither county was any tuberculous milk received.

The percentage of farmers sending tuberculous milk was 6·41—a slight increase on the figures for 1909. It is never satisfactory to record even slight increases, but I am afraid that we have now arrived at what may be regarded as the reasonable minimum under the present powers, and the figures are likely to fluctuate from year to year no matter how vigilant the authorities may be. That a definite proportion of diseased animals must escape detection is certain, and the point to be aimed at is to keep the proportion which do baffle detection at as low a figure as possible. The local authorities in many directions are simply "beating time," they carry out the, to them, only requirement of the Dairies, Cowsheds, and Milkshops Order, namely, the whitewashing required twice a year, and so far as anything else is concerned supervision may not exist. I am bound to exclude the county of Chester from the above statement, for their progressive supervision is maintained. It is limited in its scope it is true, but is far more than is carried out by other counties affected. It may be said, however, that the time has certainly arrived when the systematic inspection of all the cows by veterinary surgeons appointed by the respective local authorities is now urgently called for from an agriculturist's point of view as much as from a public health aspect. Much evidence has now been accumulated as to the suppression of certain animal diseases, and from an economic point of view it is to be hoped that extensive measures, not necessarily of an extravagant nature, may be enforced for the suppression of bovine tuberculosis. From the experience which I have gained from the inspection of dairy stock during the past ten years, I am certainly of opinion, as I have repeatedly stated before, that the elimination of tuberculosis from herds selected in the first instance is a perfectly sound and business-like proposition, and one which would eventually prove to be greatly to the financial advantage of all concerned. The intolerant attitude adopted by many people to this great work is much to be regretted, but is only on a par with what actually occurs in all proposals of a progressive character ; and beeause the experiences of a limited number of people in the earlier years were not satisfactory, it does not follow that the whole of the prophylactic measures proposed to-day are unsound. I have been tempted to refer again to this question, as it would seem, if one can read the signs of the times correctly, that dairy farming is entering upon a period, permanent we may hope, of well deserved prosperity, and if there is anything which would tend to ensure prosperity it is to show to the consumer that everything which is scientifically possible is being done to get for him a clean and disease-free supply of milk. I believe that the growing sense of security in the consumers has something to do with the progress of the industry up-to-date, for there can be no doubt, and I can speak from information gained first hand, that slowly but steadily the price of milk has gone up to a point making the business of milk production more remunerative. Concurrently the consumption and uses of milk have enormously increased during the last ten years, and I should imagine, in the case of a city like Manchester, out of proportion to the growth of the population. From the farmers' point of view the enhanced value of milk is gratifying, though whether the actual ratio of profit is increasing in equal proportion is not very certain, for the price of most foodstuffs, etc., has gone up. There is, however, one gratifying feature about the whole business, and that is that judging as far as one is able it would appear that dairy farming, or should I say milk producing, apart from cheese-making, appears to have a great future in this country. The amount of milk required to supply the very large and for the most part very admirable milk factories in the country is becoming an extremely important factor in the production of milk. Practically we may say that the supply of whole areas is directed to such receivers who pay good prices with reasonable security to the vendor, and the ultimate effect is that the area from which milk is derived for a place like Manchester becomes wider, with the result that many whose knowledge of the trade is limited are tempted, particularly in view of the comparatively ready payments, to embark on dairying.

As much instruction as possible is given to farmers by the distribution of circulars from this office, and at the same time farmers are asked to supply particulars as to the number of cows on their farms, etc., and we received replies to our queries from 392 farmers. From the figures supplied, it is found that on these 392 farms there were 7,474 cows, giving an average of 19 cows per farm, and if the average number of cows on the 468 farms from which the milk was examined is worked out, it will be found that bacteriological tests have approximately been applied to the milk of good cows.

In the process of actual examination and re-examina-

tion of cows on the country farms during the year I examined 2,450, and of this number 24 were proved to be suffering from tuberculosis of the udder.

It is gratifying to report that for the first time since the work began no single cow which has been proved to be suffering from disease of the udder escaped. Every cow was slaughtered in my presence, and the carcases were inspected as to their fitness for human food, and as a result 19 were condemned as being totally unfit, and 5 were passed. This I regard as one of the most important parts of our work, and ensures the definite removal of a proportion of the diseased cows, besides being an object lesson to the individual in whose possession they have been.

One farmer was prosecuted and fined during the year for having failed to notify to the Medical Officer of Health the presence in his herd of a cow suffering from marked tuberculosis of the udder. In this case an order prohibiting the sale of milk within the City was also imposed, and before it was removed a very stringent guarantee had to be given that the general conditions would be improved. This was necessary in view of the past history. The stock on the farm was a poor one, dirty, and ill-kept. I therefore thought it desirable to advise the Medical Officer of Health that it would be necessary to apply the tuberculin test to the herd, 36 in number, and this was eventually done. The test was applied in conjunction with the farmer's own veterinary adviser, and the net result was that 89 per cent. were found to re-act. As far as was possible the re-acting cows passed out of the farmer's hands, and gradually a new stock built up. The conditions have been much improved, and the farm is kept under constant supervision.

J. W. BRITTLEBANK, M.R.C.V.S., D.V.S.M.

MR. TROTTER'S REPORT TO THE CORPORATION OF THE CITY OF GLASGOW, 1910. [ABSTRACT].

I have the honour to present for your consideration the report of the work done by this Department during the year 1910.

The number of home and foreign animals slaughtered and inspected was 422,849, of which 79,362 were cattle, 5,971 calves, 39,724 swine, 307,784 sheep, and 8 goats.

A comparison of the returns for 1910 with those for 1909 show an increase in the number of home cattle and calves slaughtered of 2,816 and 622 respectively, and a decrease in the number of home swine, sheep, and goats of 10,157, 18,707, and 3 respectively. The number of foreign cattle slaughtered shows a decrease of 7,716.

The smaller number of animals slaughtered is not due to a reduction in the amount of meat consumed, but is the natural sequence of (*a*) the ever-increasing quantities of frozen and chilled meat placed on our markets, and (*b*) the lack of a uniform system and standard of meat inspection. It may be pointed out that the attention of the Local Government Board for Scotland has frequently been directed to the unsatisfactory condition under which a part of the meat supply is prepared in this country. No improvement, however, has been effected.

TUBERCULOSIS.

The most frequent disease affecting home animals is tuberculosis.

Following the precedent of former, I submit first the following statistics regarding its prevalence :

It is unfortunate that our Government authorities have not inaugurated a scheme for the gradual eradication of animal tuberculosis. In other countries more or less successful attempts have been made, but in this country, with a few notable exceptions, our stock-stock-owners and authorities have shown a marked indifference to the matter. This is deeply to be regretted, because tuberculosis is a preventible disease, and the longer eradication methods are delayed the more difficult it will be to checkmate its ravages.

It will be noted that since 1906 there has been a steady decrease in the percentage of home cattle affected. It cannot, however, be contended that tuberculosis is becoming less prevalent, and the reason for the decrease in the percentage is that fewer cows are being slaughtered in Glasgow. The number of cows in Scotland in the month of June in each of the following years was :

1905.	1906.	1907.	1908.	1909.
437,138	434,476	438,955	431,883	435,110

It cannot be urged, therefore, that the smaller number of cows slaughtered in Glasgow is accounted for by a decrease in the cow population. The reasons for this decrease are the larger quantities of frozen and chilled meats placed on our markets, and the lack of uniformity in the system and standard of meat inspection.

ANTHRAX.

During the year six cases of anthrax were discovered. In each case a microscopical examination was made, and the nature of the disease was placed beyond dispute by the presence of large numbers of the *bacillus anthracis*.

The precautions prescribed in the Anthrax Order were duly carried out.

NEOPLASMS.

Towards the end of 1909 I was requested by Dr Bashford of the Imperial Cancer Research Fund to forward to the laboratory under his charge all neoplasms found during 1910 in the animals slaughtered in the city abattoirs for human food. Hitherto the work of classifying these tumours had been carried out by this depart-

PERCENTAGE AFFECTED WITH TUBERCULOSIS IN HOME AND FOREIGN ANIMALS SLAUGHTERED AT ALL THE ABATTOIRS, AND RESULTS OF ADJUDICATION.

	Slaughtered.	Affected.		Destroyed totally.		Destroyed partially.		Passed.	
			Per cent.		Per cent.		Per cent.		Per cent.
Home Cattle	67,849	8807	12·98	1297	14·73	768	8·72	6742	76·55
„ Calves	5,971	24	·40	9	37·50	4	16·67	11	45·83
„ Swine	39,724	2432	6·12	77	3·16	7	·29	2348	96·55
„ Sheep	307,784	...	...	...	...	...	...	...	...
„ Goats	8	...	...	...	...	...	...	...	...
Foreign Cattle	11,513	186	1·61	1	0·54	11	5·91	174	93·55

ment, but, with the view of furthering their enquiries into the nature of malignant disease, this request was acceded to.

Prevalence.

During the fiscal year, 164 animals were found affected. These comprised 162 bovines and 2 ovines.

	Slaughtered.	Affected.	Percentage.
Home Cattle	67,849	162	·23
Sheep	307,784	2	·0006
Swine	39,724	—	—

It will be noted that no member of the porcine species was affected, and that these diseases were much more prevalent in bovines than in ovines. Of every 419 bovines slaughtered, and of 153,892 ovines slaughtered, 1 was found affected by some form of neoplasm. The marked difference here shown, however, does not permit of the assertion that bovines are more subject to malignant disease, the discrepancy in the prevalence being, I think, due to the greater age of many of the bovines at the time of slaughter.

Cows are kept much longer than bulls, bullocks, sheep, or pigs. Many have attained an extreme age before they are consigned to the market for slaughter, consequently they have reached a period comparable with what is known as the "cancer period" of man.

Bovines 162 aged. Ovines 2 aged.

Classification of Primary Neoplasms in Organs and Tissues.

Liver.—Carcinoma		4	
„	Adeno	66	
„	Alveolar	16	
„	Columnar Cell	2	
Sarcoma,	Alveolar	1	93
„	Osteo	1	
Adenoma		1	
„	Multiple	2	
Adrenal.—Alveolar Tumour		11	
Carcinoma,	Alveolar	3	
„	Columnar Cell	1	17
Sarcoma,	Alveolar	1	
„	Spindle Cell	1	
Thymus.—Sarcoma		4	13
„	Alveolar	9	
Rumen.—Carcinoma		1	10
„	Squamous Cell	9	
Intestines.—Carcinoma		2	
„	Columnar Cell	1	8
„	Adeno	1	
Sarcoma,	Spindle Cell	4	
Ovary.—Carcinoma		2	
„	Alveolar	4	7
Papillary	Adeno-Cystoma	1	
Kidney.—Sarcoma,	Mixed Cell	1	
„	Spindle Cell	1	3
Carcinoma,	Papilliferous Adeno	1	
Fascia.—Sarcoma,	Spindle Cell	1	
„	Alveolar	1	2
Thyroid.—Carcinoma		1	
„	Colloid	1	2
Lymph Glands.—Sarcoma Alveolar		2	2
Eye.—Carcinoma, Squamous Cell		1	1
Vagina.—Carcinoma, Squamous Cell		1	1
Vulva.—Granuloma, Giant Cell		1	1
Palate.—Carcinoma, Squamous Cell		1	1
Tonsil.—Sarcoma		1	1
Uterus.—Sarcoma		1	1
Rib.—Chondroma		1	1
Pancreas.—Carcinoma, Adeno		1	1
Undetermined.—Lymphoma		1	
Sarcoma,	Spindle Cell	1	3
„	Alveolar	1	
			168

VEAL SUPPLY.

Much of our veal supply is prepared outwith the city boundaries, and consignments of veal carcases arrive at all hours by road, rail, and river. The age of the calves at the time of slaughter seldom exceeds seven days—the majority being two or three days old. They are, as a rule, prepared in unlicensed premises, where they are not submitted to any inspection to determine their fitness to be used as an article of human food.

During the year 534 carcases were seized at railway stations, wharves, hide marts, etc.

It is satisfactory to record that there has been a marked improvement in the condition of carcases arriving in the city since the present system of inspection was inaugurated, but there are still many ways by which this trade could be improved.

For instance, many carcases are found, on inspection, to be undergoing decomposition. This is largely due to crass carelessness, either on the part of the consignor or carrier. Occasionally carcases are consigned unevisceratted. This incomprehensible practice is probably due *(a)* to inability on the part of the consignor to disembowel the carcase, or *(b)* in order to bleach the carcase and make the flesh appear whiter. This practice of bleaching veal by the retention of the abdominal viscera in the carcase has been the cause of meat poisoning among consumers, and every effort is made to discourage it. Again, the slaughter of the calf is delayed until the vehicle which is to convey the carcase to the station is ready to start, no time being allowed for the flesh to undergo *rigor-mortis*. The result is that on arrival the flesh is soft, and the inner surface of the carcase is smeared with blood, thus presenting an unsightly appearance. Unfortunately, however, the mishandling of these veal carcases is not confined to consignors, because during transit they are frequently subjected to the gravest abuse. They are thrown on to dirty platforms, tumbled topsy-turvy into waggons along with the usual collection of merchandise, and when they arrive at their destination they are again thrown on to dirty platforms or on to lorries.

In some instances, however, during the past few years, dealers, when consigning large numbers of carcases, have made arrangements with the railway companies to provide them with hanging waggons. When this is done the carcases arrive in very much better condition.

Owing to a popular outcry against the unsightly appearance of dead calves exposed to view of passengers, the railway companies some time ago issued a bye-law that no veal carcase was to be carried by passenger train unless it was covered.

Veal carcases are consigned to this market throughout the year, but the season commences in February, and continues until May or June. On some days as many as 500 or 600 carcases are received.

The majority are consigned to hide brokers, who distributed them among the retail trade. Inspectors are on duty at the different stations when consignments usually arrive, but owing to the hustle, imperfect lighting, and want of facilities, their inspection cannot be regarded as satisfactory. The premises of the consignees are visited at frequent intervals during the day, but as the morning consignments are delivered to the different consignees at the same time, and as carcases are arriving at all hours of the day, it is impossible to ensure the inspection of every carcase. On the other hand, a carcase

may be inspected at the place of arrival and also on the premises of the consignee, thus entailing unnecessary labour.

A considerable number of veal carcases are consigned to retail butchers. In some instances the consignees submit their consignments for inspection at one of the public abattoirs, but others do not, preferring to take upon themselves the onus of inspection, and plead, when any unsound meat is detected on their premises, that they had intended to submit it for inspection.

The improvements which ought to be effected include :—

(*a*) An age limit under which it would be illeged to slaughter calves for human food.

(*b*) The slaughter of all calves in a public abattoir.

(*c*) The prevention of surface contamination of veal during transit.

(*d*) The erection of examination stations to which all carcases prepared outwith the city must be taken for inspection before being placed on the market.

(*e*) The inauguration of a system of meat marking to ensure that every carcase sold in the city for human food has been inspected.

Inspection of Foreign and Colonial Meat on behalf of Port Local Authority.

All meat arriving at the Port from countries outwith the United Kingdom is inspected under the Foreign Meat Regulations issued by the Local Government Board for Scotland, in accordance with the powers contained in the Public Health (Regulations as to Food) Act, 1907.

During the early months of the year there were received several consignments of tierces from Canada, containing cow udders. An examination at the wharf showed that a proportion of the contents of the tierces opened were more or less decomposed. They were therefore removed from the wharf to premises in the city to permit of a thorough examination. The contents of every tierce were examined, with the result that, of the 66 tierces landed, only 5½ tierces were permitted to pass into consumpt, the remainder—60½ tierces—being destroyed with the consent of the consignee. The trade in cow udders has been discontinued.

During the month of September a steamer carrying meat from New Zealand and the Argentine arrived at the port. When the last portions of the cargo, consisting of quarters of beef and carcases of mutton, carried in one of the holds, were discharged, their wrappings were observed to be more or less smeared with a black material resembling blacking. It was conjectured that there had been a leakage in some of the brine refrigerating pipes, and subsequent enquiry demonstrated the accuracy of this supposition. A cursory examination showed that the meat contained in the smeared wrappers was also discoloured. The meat formed part of parcels consigned to three traders in the city. It was impossible to thoroughly examine the affected consignments at the wharf, and they were therefore permitted to be taken to the Cold Stores under detention. A percentage of each consignment was taken for the preliminary examination, and it was found that, in addition to the discolourisation, some were bitter to taste. Portions were removed from the quarters of beef and carcases of mutton, and submitted to Mr. Harris, the Corporation Chemist, to determine to presence of calcium chloride and arsenic. It was deemed advisable to test the latter substance, as the calcium chloride of commerce frequently contains arsenic. No trace of arsenic was detected, either in the first series of samples submitted or at any subsequent date. The presence of calcium chloride was, on the other hand, determined in a considerable number of samples. The quantity varied in amount—the largest found being 1·96 per cent.

Supervision of Milk Supply.

The supervision of our milk supply cannot be regarded as satisfactory. The Corporation of Glasgow possess in Sections 24 to 27 of the Glasgow Police (Amendment) Act, 1890, unique powers so far as this country is concerned, but even these cannot ensure a pure supply of milk from healthy cows.

Following the issue of the Report of the Royal Commission on Tuberculosis in 1898, the Local Government Boards of England and Scotland in 1899 amended the Dairies, Cowsheds, and Milkshops Order, extending the word "disease," which had hitherto only applied to those diseases scheduled under the Diseases of Animals Acts, to cover tuberculosis of the udder of cows. Undoubtedly this was a move in the right direction, but, unfortunately, it is optional on the part of Local Authorities to adopt the Dairies, Cowsheds, and Milkshops Order, and thus this amended Order has been, to a large extent, inoperative. This inaptitude on the part of Local Authorities may have been due to the inadequacy of the powers granted, because they were only empowered, in the event of their veterinary surgeon detecting a case of tubercular mastitis, in order that the milk of the diseased cow

(*a*) shall not be mixed with other milk ;

(*b*) shall not be sold or used for human food ; and

(*c*) shall not be sold or used for food of swine or other animals, unless and until it has been boiled.

It must be admitted that it is impossible to ensure that the owner of the cow will carry out these instructions. The issue of such an Order can only be described as a half-hearted measure. It is simply tinkering with a vital question affecting the health of the whole nation. A pure and wholesome supply of milk is a national necessity, and in all future legislation the Imperial Authorities ought to see to it that every Local Authority discharges its duty in this all-important matter. No Local Authority ought to be in a position of either quietly ignoring or carrying out this all-important work in a half-hearted fashion. The recent report of the Royal Commission on Tuberculosis has emphasised in no uncertain manner the importance of this question, and every endeavour ought to be made to detect at the earliest possible moment every cow affected with an open form of tuberculosis.

Inspection of Milch Cows (City).

The cowsheds in the city were visited on 528 occasions, and the milch cows housed therein were examined, with the result that 69 were found affected.

Inspection of Milch Cows (Country).

Farms situated outside the city were visited on 540 occasions, and 15,363 milch cows were examined. 157 were found affected.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting was held at the Grand Hotel, Manchester, on Sept. 7th, the President, J. W. Brittlebank, Esq., Manchester, in the chair. The attendance included Messrs. Fergurson, Whitehend, A. Munro, jun., Carter, Stent, Ellis, Dobie, Wolstenholme, Woods, Mattinson, Taylor, Locke, Price, Michaelis, Wilson, and Ackroyd.

Apologies for absence were received from Messrs. Faulkner, Packman, McKinna, and Darwell.

The minutes of the last quarterly meeting were taken as read on the motion of Mr. Stent, seconded by Mr. Carter.

The PRESIDENT reported having attended, along with Mr. Locke, the dinner of the Liverpool V.M.A. They were received with the utmost hospitality and had the pleasure of listening to an interesting address on agricultural education by Mr. John, M.P. The whole function was a great success, as was only to be expected when they considered who had the management of it.

Mr. CHARLES SECKER SMITH, Barnsley, and Mr. JOHN HOLROYD, Blackburn, were unanimously elected as members of the Association.

Correspondence.—A letter of resignation under date of 18th July, inst., from Mr. E. S. Gubbin, Hyde, was read. The resignation was due to removal from the district and was accepted with regret.

A letter of resignation was received from Mr. W. S. Worthington, Wigan. This was due to ill-health, and it was resolved that a letter be sent to Mr. Worthington regretting the cause of the proposed resignation and asking him to reconsider the matter.

A letter dated August 16th from the Editor of *The Veterinary News* was submitted in reference to the fund which that paper is organising for the purpose of assisting Mr. William Kirk in the appeal raised by the London County Council to compel veterinary surgeons to pay for the use of the College crest.

Mr. LOCKE proposed that the matter be referred to the Council.

Mr. CARTER expressed the opinion that they ought to subscribe to the fund. Personally he intended to do so, and he hoped every member would. He agreed with the proposal to refer the matter to the Council with a recommendation that a sum of two guineas be forwarded towards the fund.

Mr. TAYLOR asked what the state of the litigation was. The Secretary replied that Mr. Kirk had already won the case, but the London County Council were appealing and threatened to take the case to the highest Court if if necessary,

The SECRETARY reported that their invitation to the National Veterinary Association to hold their next annual meeting in Lancashire had been accepted.

The PRESIDENT moved that the matter be referred to the Council to make such arrangements as may be necessary.

A letter from Mr. Gofton, Hon. Sec. of the Committee of the National Veterinary Association was read. This conveyed the resolutions passed at Carnarvon on July 25, respecting the arrangements to bring the amended rules into operation at the annual meeting of the Association to be held in 1912, and also ensuring that existing members of the National Association shall become members under the amended rules.

The PRESIDENT pointed out that the Lancashire V.M.A. had already expressed their intention to associate themselves with the scheme, and there was no necessity to pass any formal resolution.

Other business.—Mr. CARTER asked what was being done towards subscribing to the International Congress to be held in 1914. Other societies were already contributing.

Mr. LOCKE replied that the matter had already been informally brought before the Council by Mr. Lawson, and it was decided to leave it for consideration at a later date.

Mr. WOLSTENHOLME rose to announce the death on Sept. 5th of Mr. H. D. Chorlton, a former Secretary of their Association, and a member for many years. A vote of condolence with the widow and family was passed in silence.

The PRESIDENT then reported the sad news of the death of Prof. Owen Williams on Sept. 6th. The Professor, he said, was a gentleman known intimately to many of them and held a honoured position in the profession. Personally, as an old student of the New Veterinary College, he felt the loss very deeply. He would remind the members that Prof. Williams was an honorary member of the Lancashire V.M.A. and the Society had suffered a grievous loss. His sympathies went out to the widow, and he thought they could do no less than pass a vote condolence with her in her trouble.

Mr. TAYLOR said that having known Prof. Williams so many years he desired to associate himself with the expressions of sympathy, and trusted that a letter of condolence would emanate from the Society to Mrs. Williams. Prof. Williams had done a great deal for the profession, and he (Mr. Taylor) was sorry that the Professor had not lived longer to keep his father's name in actual remembrance amongst them.

Mr. CARTER also wished to associate himself with these remarks. He had known Prof. Williams in boyhood, and had been associated with him ever since.

A vote of condolence was passed in silence, all present standing.

The PRESIDENT here desired to say how glad he was to see Mr. Taylor amongst them again after his serious illness.

PATHOLOGICAL SPECIMENS AND CLINICAL CASES.

Mr. NOEL PILLERS: I have here a few slides, and although harping on the old subject of parasites, I think there is a little clinical interest attached to them. The first three slides are of the dog flea. There is an old specimen which shows the usual character of the dog flea which is distinguished by its combs. The second slide shows the eggs, and the third is the larval stage. A veterinary surgeon was consulted concerning a little Pomeramian dog from which, whenever it shook itself, a number of pearl white bodies dropped. These bodies measured about ·8 mm. He also found on the dog two or three small things which looked very much like maggots, about 4 mm. long. He wished to know what they were. The pearl white bodies are the eggs of the dog flea and the maggots are the larvæ. It has been shown that in long-haired dogs it is possible for the whole life-history of the flea to take place on the host. The adult lays the eggs, and according to the temperature these eggs hatch out in from six to twelve days, and after another five or six days, bringing the time up to about seventeen days, these larvæ turn into a nymph in a cocoon and this soon turns into an adult.

The fourth specimen is a small nematode from the cæcum and colon of the horse, viz., Probstmayria vivipara sometimes called Oxyuris vivipara. It is two to three m.m. long, and is so small as to escape observation unless looked for microscopically. It is of interest as it is probable that it is sometimes mistaken for immature forms of some of the larger nematodes of the horse's bowel."

Mr. WHITEHEAD submitted a specimen of tuberculosis of the intestine of an old cow. He brought it forward as being from the most marked case of ulceration of the bowel he had ever seen.

Mr. WOLSTENHOLME gave the history of a mare which died from dilated and hypertrophied heart. On first receiving the animal in hospital on January 22nd she was practically pulseless—it was not possible to feel more than a tremor. Her temperature was 101·8, pulse 72, and very weak respiration, and this went on from the end of January to 30th May, when she had colic and died. Post-mortem examination revealed simply this dilatation and hypertrophied condition. The mare was in the prime of life: the heart weighed 20lb. The only symptoms were this pulselessness, raised temperature 100 to 106, and somewhat increased respiration. She ate and lay well, her appetite was good, and the bowels were normal all the time.

Mr. STENT reported cases of poisoning in pigs from eating green potatoes. The owner had picked up some green potatoes lying on the land and given them to his

pigs (three weeks old). Half-an-hour after feeding they began to be ill, and two died. There was no eruption on the skin, and a post-mortem revealed nothing. He had seen a similar occurrence in a pony, which did not end fatally, although the animal had been very ill.

He desired to hear an opinion as to the efficacy of nuclein in the treatment of pneumonia. He had used it hypodermically on three horses out of seven under his treatment, and these were longer in recovering than those not so treated. In treating dogs with it he had formed a very favourable opinion of its use. He had recently treated a Great Dane suffering from bad distemper; he gave an injection of 4 c.c. of nuclein and the following day the hæmorrhage ceased; two days later the appetite returned and the animal did splendidly.

Mr. TAYLOR had found nuclein of marked assistance in cases of pneumonia in horses. He found that the best time to employ it was at or during the crisis.

Mr. MATTINSON had also used it with success. He reported a case where he had been engaged to castrate a horse. The owner asked him to take the colt away, but on arrival Mr. Mattinson found it to be not in a condition for castration so turned it into his own field, and told the owner, who requested that the colt should remain there until ready. About a month later he was surprised to receive a message that the colt was lying dead in the field. A post-mortem examination revealed the cause of death to be due to yew poisoning. The yew trees were situated over the fence on another person's estate, and the question of liability arose. Legal opinion was taken, and was to the effect that the owner had no claim for the loss inasmuch as the colt had been placed in the field by favour and not for reward.

He also reported a singular case very suspicious of foot-and-mouth disease. This was a cow, recently calved. The cow could not bear the mouth or tongue to be touched, and could not eat. Treatment was ineffectual, and examination after death revealed only this sore mouth.

Mr. TAYLOR submitted a question recently put to him —Is a horse that will not lie down an unsound animal? A person bought a harness horse warranted sound and a good driver. There was no fault to find with either of these conditions, but the animal refused to lie down. Mr. Taylor caused amusement by stating that the reply he gave was that it might constitute unsoundness or it might not, but he could not tell without examining the animal as to any abnormal condition or disease. Mere refusal to lie down in the absence of any symptom of abnormality did not appear to amount to unsoundness. The solution was that in a few days the horse did lie down.

Mr. CARTER asked what the stable was paved with. He had known fresh horses brought on concrete that had been months before they would lie down.

Mr. WOODS stated that he had bought a pony that would not lie down in the stable, although it would do so in the field. The animal was perfectly sound in every way.

The PRESIDENT reported a case occurring in the course of his work which showed how difficult it was sometimes to diagnose tuberculosis of the udder, a difficulty which is now becoming very common in his district, as owing to the supervision exercised the farmers generally will not keep a cow which is in any way suspicious. In this particular case, occurring on a farm in Cheshire, the sample of milk taken showed that tuberculosis had been produced in the inoculated animal. On visiting the farm 46 cows were examined, but he could find nothing to direct his suspicions to any particular cow. Careful enquiries as to the disposal of any cows prior to his visit elicited nothing, and finally he came to the conclusion that the information was unreliable, and that a cow or cows had been sold. However, a mixed control from the whole herd was obtained, and on being submitted to the inoculation test was again found to cause tuberculosis. He again visited the farm, but was still unsuccessful in discovering any suspicious cow. The herd was then divided into groups, and five samples representing each the milk of eight cows, and one the milk of six, were taken. Subsequently the milk of one group was found to cause tuberculosis, and on visiting the farm again one cow (in good condition) showing only the slightest possible symptoms of udder disease was found. The whole lesion discoverable by manipulation would not have covered a sixpence. The remarkable feature about the case was the length of time (three months) which elapsed before even suspicious lesions were discoverable.

Referring to the inadvisability of expressing decided opinions, he had a case quite recently where he diagnosed tuberculosis of the udder in a heifer—a comparatively rare occurrence, it is true. The lesions were certainly very slight, and the heifer appeared in good health, although examination of the chest gave decided signs. The farmer was somewhat upset, and called in a certain practitioner in Cheshire to examine the heifer, which he did, and subsequently stated that it was ridiculous to condemn the beast, as he was as sound as a bell; and he made some very uncomplimentary remarks regarding the clinical skill of many veterinary surgeons and of the speaker in particular. However, the gentleman (?) was invited to attend the post-mortem, but failed to do so and sent no excuse. Incidentally it was found that the diagnosis was amply confirmed, and the carcase was condemned as unfit for food.

He did not for a minute complain about differences of opinion, it was only natural that people should differ, but he did think that it was a gratuitous piece of impertinence for one man to pass reflections upon the ability of another veterinary surgeon, even although the latter were the occupant of a public position.

Mr. WOLSTENHOLME instanced a case of a horse having been sent to the forge. As they were busy a veterinary surgeon suggested that the horse should not be allowed to stand in the street, but offered the use of a loose-box. The offer was accepted. The box was a good size and well paved, but when the horse was brought out it was found to have got a pastern split in three places. The owner of the horse wanted compensation from the owner of the box.

The meeting was closed by a vote of thanks to those members who had brought up cases for discussion, proposed by Mr. Price, seconded by Mr. Locke.

G. H. LOCKE, *Hon. Sec.*

VETERINARY MEDICAL ASSOCIATION OF IRELAND.

(*Continued from p. 170.*)

ROARING AND WHISTLING.—DISCUSSION.

Prof. CRAIG was loudly applauded on concluding the reading of the paper.

The PRESIDENT remarked that they had had a very interesting, not to say elaborate paper, from Prof. Craig, which offered plenty of food for reflection. He had put plenty of material before them to ensure a good discussion. There were present a good number of practitioners whose opinions were worth having, and he was sure they would have reason to rejoice that Prof. Craig had brought forward the paper, because he had little doubt that many present were anxious to give their opinion upon this debatable subject.

Mr. MCKENNY said that immediately after hearing so able a paper as that read by Prof. Craig on so interesting and important a subject that it required due considera-

tion previous to seriously discussing the various questions that had been raised, especially as there was great diversity of opinion or many of the questions, and general definite conclusions had not been established relative to them. He therefore proposed that the discussion should be at least extended until the next meeting of the Association. However, on the present occasion he noticed that Prof. Craig in his remarks relative to the causes of whistling and roaring, omitted to mention the affections arising from gastric troubles, such as indigestion, etc. The Professor told us that on this occasion he wished to confirm his remarks to "whistling and roaring" resulting from paralysis of the recurrent laryngeal nerve, but in doing so had omitted to mention the origin of the nerve—pneumo-gastric—and if he had done so it was a serious omission. Mr. McKenny was not certain that it had been omitted, but he was fairly certain that in the enumerating of the diseases affecting the nerve he had only mentioned those of the respiratory organs, and had not cited the gastric derangements. Thus if the subject is to be considered in its entirety, if the causes of paralytic whistling be only considered as arising from diseases affecting the respiratory organs, most erroneous conclusions would be arrived at, as paralysis of the recurrent laryngeal nerve is due to affections ensuing from derangements of the pneumogastric nerve. Therefore as this nerve is common to the lungs and stomach, ailments affecting these organs must be considered to arrive at correct conclusions on the subject. Without this knowledge there are many important facts which we could not explain, but with it we can readily understand such matters as why whistling arising from chronic disease of the lungs more seriously affects a horse's power of endurance than if the abnormal sounds were due to gastric affections. Granting either organ has become chronically affected, whether whistling has taken place or not, the effect on a horse as to its capability to perform its requirements are vastly different in each case, that is, allowing that the horse otherwise is in good condition.

The PRESIDENT reminded them of the questions Prof. Craig had asked—What is roaring? What are the symptoms? What is the cause of the sound? What are the predisposing and exciting causes? and For what diseases may it be taken?

The PRESIDENT then introduced two gentlemen who arrived at the meeting, Dr. M'Call, of the Board of Agriculture, and his brother, Prof. M'Call, of Glasgow, who were heartily welcomed.

Mr. CARGILL PATRICK remarked that they had listened to a very interesting paper. Prof. Craig had put a very difficult problem before them to solve. He thought the causes were so numerous and varied that they were quite in the dark as to the causes of roaring and whistling, as they got it in so many different forms. They sometimes had it due to the condition of the stomach. He had known cases where you could bring out a horse and hear him across the street whistling, and after half-an-hour he might be sound. For that reason he did not think for a moment that he would attempt to solve the question at all. He did not agree with Prof. Craig's definition of roaring. He said they only got it during certain stages of respiration. He considered roaring was an abnormal sound—in either inspiration or expiration. In other cases they had grunting taking place, which was supposed to be sometimes due to consolidation of the lungs. A great many cases of roaring were due to some nerve degeneration. They could have an abnormal sound due to the thickening of the mucous membrane. So many different points had been brought forward that he thought they would want to read the paper, and take up the points and discuss them. It was due to Prof. Craig to do that in order to give his paper justice; the points could be discussed as fully as they should be. He suggested that it be brought forward at the next meeting for discussion.

Mr. P. D. REAVY seconded Mr. Patrick's suggestion.

Mr. MASON said he was sorry he was not present to hear the whole of the paper, but he was interested in Mr. McKenny's remarks, although it was difficult to follow him through his meanderings on the pneumogastric nerves. He was not sure if Prof. O'Connor was present, but if he was, he would like to hear his experience of the new operation.

Mr. WINTER said it was hardly fair after a hard day at the show to be expected to answer these questions. There was no question as to the excellence of the paper. He agreed to the suggestion that they should get a little more time before they answered the questions. There was one point they might touch on at the next meeting, and that was a point which had a legal aspect It was as to exact time that roaring or whistling may begin. There was another question that puzzled him, and that was if it was due to changes in the nerve tissue and the paralysis of cartilage connected with the vocal cords, why would a horse whistle at first and subsequently go sound. He knew a case where Mr. Patrick rightly rejected a horse for a whistler and he immediately afterwards galloped perfectly sound. He had seen horses rejected at shows, which galloped sound immediately afterwards on appeal. Both opinions were perfectly right, and yet the horse was wrong. He had had some bitter experiences of whistling. He had a good horse and rode him in the morning. A customer came along and bid him a good price, which he refused. He rode the horse again in the evening and he was wrong, and wrong ever afterwards. It is a question—Was that horse a whistler from nerve disorder or concentration of the mucus in the throat. Does a whistler ever recover? It was a well-known fact that whistlers and roarers did recover. In that case what was the whistling due to? He thought it was due to some tumefaction of the larynx pressing on the nerves. Then, again, whistling became incurable. It was a point they could never come to agreement upon, because they could not examine the organs involved. He did not know if conformation had anything to do with it, but there was no doubt that heredity had had a great deal to do with it. Whether the tendency was hereditary or the disease he did not know. There was a celebrated sire in a stud they all knew and most of his progeny turned whistlers and bad roarers. He understood the new operation was tabooed—rather unfortunately, because they might get information from men who had tried it. In opening the larynx they saw different conditions. In a horse which was a bad whistler or roarer they sometimes saw little change. He hoped a discussion on the paper would be arranged on a future date, so that they might not be tied down to the questions that Prof. Craig had asked.

Mr. HOWARD was of opinion that the Association was to be congratulated on having such a paper before it. It was a troublesome disease. Prof. Craig had given them a definition of roaring, but he did not think it was the definition accepted by the everyday workman. Unfortunately the profession did not hold an opinion of its own; it was very considerably mixed up with the opinion held by the general public and horse-owners. The accepted definition of whistling was that it was an abnormal sound produced during expiration or inspiration by the animal if put to severe exercise It was for the veterinary surgeon to say what that sound was. The ordinary public they had to deal with had that as their notion of roaring, and it was one of the aspects of roaring that he would like to be discussed and to be cleared up, because he thought it would do good to members of the profession who had to examine horses as well as to the public who had to buy them. One of the greatest benefits accruing at any time to the profession followed

when they were the means of educating the public to understand better what they had to do. He thought the public generally recognised when they gained any benefit from the profession. It was a common practice of veterinary surgeons when examining a horse, and it was expected by the public that if that horse made a noise of whistling or roaring it had to be cast. That was perhaps, the most unfortunate aspect of the whole matter, because they all knew of horses which sometimes made a noise, and afterwards when put to severe exercise, would be found to be more or less right. They all knew it was a common thing to get a horse to go and have a ride, and he jogged away out of the yard and they thought he made a noise. Then they got into the field and did three miles over the country, and never heard anything. He always thought such a horse was sound, but it was not fair to the client sometimes. If he passed such a horse as that sound, as he believed him to be, someone else came along, and because he heard that little noise cast him. So the client suffered. Prof. Craig had answered very extensively the questions he put himself. He had classed strangles as a disease of the respiratory organs, and one which was often-times followed by roaring. He (the speaker) did not regard strangles as a bad disease. With regard to heredity of roaring, he thought the concensus of opinion seemed to be that heredity was indeed very well proved with regard to the transmission of roaring. He thought there were several cases on record that horses had made good recoveries from roaring and whistling, and after considerable time of being roarers and whistlers. He did not say it was very usual, but it was common enough with horses that became roarers after such affections as strangles. Horses from good stock had a chance of becoming sound and well again. What part did Prof. Craig think was played by hot climates on the state of the larynx? Some well-known roarers had left Ireland and England, and when they got to places like South Africa, South America, and Australia they became sound. (Applause).

Mr. MAGEE said that Prof. Craig had asked several questions, but that many need not be answered, as he had answered them himself. For instance, he asked "What are the predisposing and exciting causes"? He thought Prof. Craig had mentioned every one of them. With regard to the first question—What is roaring?—he was inclined to agree with Mr. Patrick and Mr. Howard that it should not be looked on as an abnormal sound alone, because he was inclined to be of that belief until about a year ago when he met his first roarer, which made its first sound in expiration. He had to gallop him before he was satisfied that he was roaring. He was not a usual case of roaring, but he was roaring during expiration.

Although the subject of the new operation was not to be discussed, there were a few things in connection with it that had a bearing on the paper, and one was in connection with the horse he was speaking of. He operated on the horse, although he had not much hope of recovery, but it eventually made a complete recovery. After three months he made an abnormal sound, but a month later he was perfectly sound. In that case the left arytenoid cartilage and the vocal cord was only slightly affected. They were not badly paralysed. Another thing the new operation had revealed was that it did not follow that because they found on looking in the larynx of the vocal cord or the arytenoid cartilages that the trouble was not there. He had done a number of these operations and found that Prof. Wooldridge was wrong. He knew a horse which roared owing to strangles. He was asked his opinion as to the advisability of operating on him. He thought at the time that a horse that became a roarer owing to strangles was not likely to yield to operation. He thought it was worth trying, however, and operated about three months ago. He examined him last Thursday, and he would now put him before any veterinary surgeon to be galloped for his wind. He had hard luck over the horse, because he nearly went before Mr. Allen. He was called in by the judges for a prize, but did not get one as he was thick about the neck. He would be able to tell Mr. Allen that he had passed a horse which was a roarer.

Mr. ALLEN: I bet you 5/- to £20 he is not sound.

Mr. MAGEE: I bet you if I put him among five other horses you will not pick him out.

Mr. ALLEN: Done.

Mr. MAGEE said he wondered why Mr. Allen examined all the throats, especially as he did at the Navan horse show. He would bet Mr. Allen on another point—that he would not show him the wound he made in the horse's throat.

Mr. ALLEN: I bet you a sovereign I will.

Mr. MAGEE: Only if you shave the neck.

Mr. Magee, continuing, remarked that the horse had been crabbed by people who had not seen the operation and it was not fair. He supposed the symptoms of roaring were hearing an abnormal sound of roaring and whistling, and also grunting as a rule.

The subject of the grunting was an interesting one, too, and was a subject on which there would always be a difference of opinion. When he was in the London Veterinary College Prof. Macqueen, an eminent veterinary surgeon, said that grunting had nothing to do with whistling or roaring or roaring. At the time he believed that, but as he got experience he had changed his opinion. He was conscious of the fact that although he might be casting horses which were grunters as not being sound in wind, the horse might remain sound all his life. Therefore grunting was not a sign of whistling and roaring, or that the horse would become a roarer or whistler. What is grunting? That was a question he had never heard asked at a meeting, nor answered. The conclusion he had come to was that grunting was, as a rule, due to the inability of the horse to close the glottis on the arytenoid cartilage. If a horse had perfect use of the epiglottis he would hermetically seal the larynx. He thought grunting was the vibration of the epiglottis with the arytenoids.

With regard to strangles he had never seen a case of it affecting the respiratory system. He knew it did often lead to pneumonia and pleurisy. He considered that they should postpone the discussion to a further meeting, and thanked Prof. Craig for his paper. (Applause).

Mr. HEALY said he had the experience of buying a horse for £18. He was a roarer and was cast by a veterinary surgeon. He (Mr. Healy) hunted the horse for two seasons, and then it took cold. Blisters on the throat followed, and he was put to grass. The following season he became a sound horse and he was sold for £100, having been passed sound. He would like to know the cause of roaring in that case. Practically there was no test to find out what was the cause of roaring.

Mr. J. B. DUNLOP said he thought in bad cases or aggravated cases, roaring occurred during inspiration and expiration. There was no doubt that the predisposition to the disease was hereditary. He had a considerable amount of sympathy with what had been said about grunting. It was a premonitory symptom of roaring. There might be a certain paralysis of the muscle which expanded the arytenoid cartilage and the larynx was caused to contract, and then a sound was emitted. He had known cases of roaring to recover—several cases.

Prof. M'CALL, after expressing regret that he did not hear the paper read, said he had listened to some of the remarks and there were one or two points he would like to touch upon. He thought they, as a profession, should devote some time to the discussion of roaring. The more he saw of the disease in its various phases the more he was inclined to the opinion that there were

different opinion which had been confounded by many. They were led to believe it was owing to abnormal conditions of the recurrent alteration of the larynx. There were so many conditions which might give rise to roaring which was distinct from what was ordinarily recognised as roaring. The time was opportune for such meetings as they had that night. A speaker had asked if grunting was a symptom of roaring. He did not know what the feeling of the meeting was, but he thought they might get a horse which was a distinct grunter, but when they galloped him he seemed to be perfectly sound. High conditioned horses for show purposes often make a noise to a stick. One gentleman made a reference to strangles as being not a disease of the respiratory organs. He could not agree with that, because it had been pretty well proved that strangles was a bacterial disease which attacked the respiratory gland.

Prof. DUNCAN said that with regard to the aspect of heredity, Prof. Craig's paper was marked with a caution characteristic of his countrymen. He had chosen ground for battle and wished to hold up the position he had chosen. The part that heredity played in this case seemed to be one of interest. Prof. Craig had said that the disease was undoubtedly hereditary, and he thought many would bear that out. If heredity was of the nature of predisposition it seemed to be very vague. He did not know exactly what predisposition was in the case of heredity. How could a horse be predisposed to strangles or influenza?

Mr. MCKENNY was pleased that the Chairman had allowed them to speak a second time in this discussion. Prof. Craig had asked them to define the sounds of whistling and roaring, but each of us unfortunately formed our own opinions as to the sounds, therefore, at present it would be impossible to give a definition that would be generally accepted as correct, all we agree to is that the sounds are abnormal, as for instance the Professor in his paper set forth that in true whistling the abnormal sound was always in the inspication, and all the speakers with the exception of one agreed with him, and that gentleman definitely said it was not always his experience, and he cited two cases that recently came under his observation, and told us that those two horses were very bad whistlers, and it was during expiration altogether that the abnormal sounds occurred. He also informed us that he performed the new operation on both of these horses, and when he opened their larnyx in neither did he find any abnormality, and the arytenoid cartilages were quite active. Yet he stripped the ventricles of both horses and they became perfectly sound. Taking all that Mr. Magee had said into consideration, he (Mr. McKenny) was of the opinion that these horses were not true whistlers, and that the operation should not have been performed, and that they would have become sound equally as well without it. Under such circumstances a definition of the sounds of whistling, and many other matters pertaining thereto, could not be satisfactorily agreed on. Indeed each individual seemed to form his opinion at the time of examining a horse. Therefore, in considering the subject from a scientific and practical point of view, it is most essential to bear in mind that paralysis of the recurrent laryngeal nerve can arise from diseases of the lungs and stomach. Relative to the cases in which the new operation should or should not be performed, Mr. McKenny would have liked to refer to this matter, but as the Professor in his paper requested us on this occasion to confine our remarks to the questions which he had submitted, and not to introduce the subject of the operation. As to whistling being hereditary, Mr. McKenny was of the opinion that it undoubtedly was handed down from parents to their offspring, but in this age of enlightenment this state of matters is said to be predisposing influence and not heredity, all because we fail to find the micro-organism of what used to be called hereditary diseases.

With most of Prof. Craig's remarks Mr. McKenny agreed, and he felt greatly indebted to him for the great trouble he must have taken in compiling the paper.

Mr. MAGEE said that speaking of the five-year-old horse which had strangles the vocal cords were working perfectly. In his opinion the horse became perfectly sound. If the arytenoid cartilage was sound the trouble must have been somewhere else. The explanation possibly was that the left or right vocal cord, after the horse had been galloped, either one or both of these cords became tired, and then they made abnormal sounds. That idea occurred to him before he met Prof. Hobday, and he said he considered that was the explanation too. As regarded the question, What is roaring and whistling? to answer that properly was practically an impossibility.

Prof. WILLIAMS, who was received with applause, in response to a request from the Chairman, said he considered it a great honour to be asked to speak on one of the most important subjects that the profession at the present time was wrestling with. As regarded the question, What is roaring? he thought he had the sympathy of the profession in saying that it was entirely an indefinite affection of the horse. Roaring to all of them was simply an abnormal sound which might be due to at least one of half-a-dozen or more affections. The expiratory sound was not to be classed with roaring. There was a sound which caused confusion with younger men than he saw there which was known as "high blowing." They could say a horse was a roarer and then proceed to find out what was the cause of his roaring. The cause might be removable, or a cause of roaring might be a matter requiring surgical interference. It might be perhaps the removal of tumour paralysis owing to a diseased bone or tooth, and unfortunately—and he said it advisedly—unfortunately though the profession had never laid down a hard and fast law what roaring was, they had come to the conclusion that when they saw a horse was a roarer he had a laryngeal affection. He differed from that. It was for the profession to lay down a correct definition of the term, or introduce a new term. Roaring meant so many things, and it was absurd for a man to say that because a horse roared it was unsound. One thus condemned a good horse which might be all right in a couple of days. He appealed to the profession to come to a definite definition of what roaring was, as he thought they knew the symptoms. As to what were the predisposing and exciting causes, he thought he had dealt with that. He was a strong believer in heredity with regard to roaring. In his own experience he knew a large number of cases in which one or other of the parents was unsound in wind, and the majority of the progeny became unsound in wind. If anyone brought a horse to him which had an unsound dam or sire and it grunted, if he were told that the parents were wrong in the wind he would not put the grunt down to stomachic affection, but as the premonitory condition of a permanent roarer. He appealed to the Association to seriously try and define the term "roaring," and get it generally accepted by the profession, so that with these transitory affections they should not condemn a horse as a "roarer," but have descriptive names for the afflictions.

Prof. CRAIG, in reply, said he thanked them very much for the kind reception they had given to the paper. His chief reason for writing on roaring was to glean information, and the information he wanted and had obtained was as to what the profession in Ireland considered the disease to be. Horses had been put down as roarers and whistlers and been recommended for laryngeal operations—and why? Because presumably they had a disease of the larynx. Now he heard that any horse who made a noise from whatever cause was a

roarer or whistler. Could an operation be of service in all these cases? It was time an attempt was made to distinguish between these various diseased conditions causing abnormal respiratory sounds. He defined the terms roaring and whistling in his paper. No doubt from the point of view of examination for soundness it was important that abnormal respiratory sounds should be noted, and no horse making a noise should be considered sound, but when it came to the recommendation of horses for operations, then a selection should be made. He thought such a selection was necessary in order to prevent what appeared to be theoretically the most hopeful operation yet recommended for roaring and whistling as he defined it, from getting into ill repute and becoming unjustly condemned. He was sorry that some attempt had not been made by practitioners in Ireland to distinguish between the causes of these abnormal sounds in the respiration of a horse. He did not know that he had very much criticism to reply to, and the reply he had in most cases was to refer to the paper. Most of the points to which reference had been made had been noted there. He thought they were too apt to think that a disease which was considered by their predecessors to be hereditary was to be put down as hereditary once and for all, and they were to accept it and never question it again. That was why he wanted information on that point. There was, he was sure, plenty of information to be obtained from the practitioners there that night, but they seemed afraid to give it. With regard to Mr. Winter's definition of whistling which disappeared after a run, he thought he (Prof. Craig) must have referred to that sort of whistling in another way. He was told by Mr. Howard that recovery had taken place from roaring and whistling. But he presumed that he did not mean the roaring and whistling which was defined in the paper. No doubt cases did arise where an abnormal sound was produced, and after a time the inflammation disappeared and the horse became sound. These were the cases often put down as roaring and whistling. Occasionally recovery did follow true roaring and whistling. He had heard of horses being sent abroad and recovering. Plenty of instances were given in which the progeny of these whistlers or roarers taken to South America say, or to California, and yet the progeny did not become affected. He was very much interested in what Mr. Magee had to say. He could not explain by the operation the recovery in the case he referred to. He referred to grunting. Some grunters might become roarers, and others remain perfectly sound.

Mr. MAGEE: Where does the grunting come from?

Prof. CRAIG: The larynx.

Mr. MAGEE: What part of the larynx?

Prof. CRAIG: The glottis.

Prof. Craig, continuing, said with regard to the horse mentioned by Mr. Healy, he would like to know what was the nature of the sound produced, whether it was made during inspiration or expiration. He hoped that at the next meeting, when the discussion would be continued, that the practitioners would come forward more readily to give their considered opinions and experiences on this important condition. Up to the present apparently sufficient care had not been taken in the selection of cases for removal of the larynzeal ventricles, and it was right that they should consider which cases should, and which should not, be operated on.

In conclusion, he thought it was hardly fair to the new operation that all horses making abnormal respiratory sounds should be operated on or recommended for the operation. (Applause.)

Mr. MCKENNY proposed a vote of thanks to Prof. Craig for his very able and interesting paper. He deserved a second vote of thanks for his very clever reply to the speakers, indeed it was the keynote to the whole subject, and if the matter were taken up and considered on the lines set down by Prof. Craig, he was certain that before long the profession would have more exact and definite knowledge of the subject of whistling and roaring which has been, and is at present, a subject of endless differences of opinions to professional men.

Mr. WINTER seconded the motion, and remarked that it was impossible to give a definition on paper of roaring and whistling. The paper had provoked a most interesting discussion, and he hoped it would be continued on a future date. (Hear, hear).

The vote of thanks was passed, and the Chairman in conveying it, said that the discussion would be resumed at the next quarterly meeting when they had had time to read the paper in print. He thought it would add to the effect of the discussion if at the same time the results of operations performed on horses, suffering from roaring were given.

On the motion of Prof. Williams a vote of thanks was passed to the President for his conduct in the chair.

The meeting then terminated

Hydrophobia from Fox Bite.—Death of a Master of Hounds.

An extraordinary case of death from hydrophobia, caused by the bite of a fox, was investigated on Friday, Sept. 22, at a coroner's inquest upon the body of Mr. Richard Bower, of Crockerton, Warminster, the master of the South and West Wilts Foxhounds. The inquiry was held by Mr. F. A. P. Sylvester, the coroner for the district, at Sutton Veny, near Warminster.

From the evidence of a relative it was clear that some months ago Mr. Bower was bitten on the hand through a thick woollen glove by a hunted fox at the end of a run at the close of last season. Mr. Bower dismounted from his horse to break up the fox, and as he drove back the hounds and held the fox he was bitten by the animal. A hunt servant who was present at the time stated at the inquest that Mr. Bower made no complaint then about the bite. Later, however, Mr. Bower mentioned the matter casually to friends.

Medical evidence was given by Dr. Robert Lewis Willcox, who attended during the last illness. Mr. Bower, he said, became ill on Monday and died on Thursday night 21st inst. Not until Wednesday evening at six o'clock—twenty-eight hours before death—were any signs of hydrophobia manifest. Then, however, the symptoms showed, and the patient suffered from fever and great weakness.

It was almost impossible for him to swallow, and he had great difficulty in breathing. Paralysis of the muscles of the jaw ensued, with paroxysms. The patient suffered terribly. In conjunction with three other medical practitioners Dr. Willcox was convinced, after his clinical examination, that the complaint was hydrophobia.

During the interval between the time he was bitten and his death Mr. Bower had been in excellent health. No signs of hydrophobia have been displayed among the hounds, none of which were bitten by the fox, nor is there as yet reason to believe that other foxes in the district have been infected.

Specimens of the patient's secretions have been sent for examination to two eminent pathologists in London. *Daily Mail.*

I hold every man a debtor to his profession; from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help and ornament thereunto. (Bacon).

DISEASES OF ANIMALS ACTS 1894 TO 1910, SUMMARY OF RETURNS.

Period.	Anthrax. Outbreaks Con-firm'd	Anthrax. Outbreaks Re-ported	Anthrax. Animals Con-firm'd	Anthrax. Animals Re-ported	Foot-and-Mouth Disease. Out-breaks	Foot-and-Mouth Disease. Ani-mals.	Glanders (including Farcy) Out-breaks	Glanders (including Farcy) Ani-mals.	Counties Affected / Animals Attacked	Sheep Scab. Out-breaks	Swine Fever. Out-breaks.	Swine Fever. Slaugh-tered. *
GT. BRITAIN. Week ended Sept. 23	16		16				3	9		1	48	456
Corresponding week in 1910		23		23			10	21	Essex 1	4	25	158
Corresponding week in 1909		21		24			10	44		...	18	73
Corresponding week in 1908		18		21			16	45		2	30	297
Total for 38 weeks, 1911	628		779		8	425	148	346	London 4	310	1888	21973
Corresponding period in 1910		1064		1272	2	15	280	839	Middlesex 4	348	1062	9630
Corresponding period in 1909		961		1279			405	1464		474	1308	11786
Corresponding period in 1908		803		1070	3	112	613	1885		643	1552	9140

Board of Agriculture and Fisheries, Sept. 26, 1911.

	Parasitic Mange (outbreaks)											
IRELAND. Week ended Sept. 23	...	...	...	...	...	...	1	3	5	91		
Corresponding Week in 1910 ...	...	...	...	...	...	...	2	3	...	...		
Corresponding Week in 1909 ...	1	1	...	...	...	...	...	...	1	66		
Corresponding Week in 1908 ...	1	1	...	...	...	...	1	...	1	163		
Total for 38 weeks, 1911 ...	7	14	...	...	2	3	54	261	102	1708		
Corresponding period in 1910 ...	5	8	...	...	1	2	58	358	73	1707		
Corresponding period in 1909 ...	6	6	...	...	...	...	67	307	86	1513		
Corresponding period in 1908 ...	7	10	...	...	...	...	32	277	141	3247		

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Sept. 25, 1911

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

Royal Agricultural Society of England.

The 73rd Annual Show of the Royal Agricultural Society of England will be held at Doncaster (on the Racecourse) from Tuesday, July 2nd, till Saturday, July 6th, 1912.

ARMY VETERINARY SERVICE.

Extract from *London Gazette*,
WAR OFFICE, WHITEHALL, Sept. 22.

SPECIAL RESERVE OF OFFICERS.
ARMY VETERINARY CORPS.

P. B. Riley to be Lieut. (on probation). Dated Sept. 23.

CORRESPONDENCE.

AN UNUSUAL SKIN AFFECTION IN CATTLE.

Sir,

Reading in *The Veterinary Record* of last week, I see Mr. Wallis Hoare describes an outbreak of a skin affection which has certainly puzzled me as to its origin. I have had two herds affected. One which originated in a herd of 15 heifers, of from 2½ to 3 years of age, and they showed the symptoms described by him; but in most cases the disease was more severe. The point of inoculation seems to be the back of the knee. Extensive swelling from the knee upwards, and an abscess forms at the point of the shoulder in one out of three cases. The complaint spread to 40 beasts, varying from 18 months to 2 years, and not only did they have the forelegs affected, but also broke out in the joint of the hock. All these cases showed loss of flesh, until the abscess broke and discharged.

The second outbreak occurred on a dairy farm, 15 miles apart from the first. In this case the means of inoculation were quite feasible. The owner having bought a heifer which had shown signs of an eruption at the back of the knee. In ten days four out of twenty milch cows had an eruption there, but in a much smaller degree to the others in the first case. After fourteen days the whole herd was infected. I treated them with antiseptic dressings and isolated them by not allowing any to be sold. It appeared to be a case of contagious mallenders and sallenders.

In conclusion, there is no doubt it is very contagious. No loss of life, but loss of value owing to the animals sinking in flesh. Perhaps some of our more fortunate *confrères* with bacteriological facilities can help us. Both these cases were reported as suspicious foot-and-mouth disease.

OSBORNE G. HILLS, M.R.C.V.S.

Royal Leamington Spa. Sept. 26.

DISEASE IN PIGS—AN ENQUIRY.

Sir,

I wonder if any of your readers could, by my simple description, tell me the malady from which quite a number of young pigs are suffering.

A litter of nine, a fortnight old, all died exhibiting extreme peeling of the skin. I have now under my observation another litter showing the same symptoms, and they look like dying.

I should be grateful if anyone would give me the benefit of his experience.—Yours faithfully,

Sept. 28. ENQUIRER.